R. E. A. Job and Safety Training Conference Report

October 4-8, 1948

Morgan Hall
University of Tennessee
Knoxville

Published by the
Tennessee State Board for Vocational Education
Trade and Industrial Service
Nashville

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PREFACE

During the period October 4-8, the National REA Instructor's Conference met at Knoxville in Morgan Hall of the University of Tennessee Farm for their annual five-day conference.

On Wednesday, October 6, the group visited Fort Loudon and Fontana Dam of the TVA and Cheoah Dam of the Aluminum Company of America. This trip proved both interesting and profitable and took the visitors through some of the most beautiful scenery in the Eastern Appalachian Region.

It was a distinct pleasure on the part of the authorities of the University of Tennessee and of the Tennessee State Board for Vocational Education to act as joint host to the REA instructors and others who attended the conference. Tennessee would be happy to be host again to this group, and we hope that our state will be selected within the near future as the place for holding this Instructor's Conference.

Credit for the arrangements for the conference and seeing that everything was in order should go to C. G. Alexander, East Tennessee REA Instructor, who was primarily responsible for taking care of these details. He was ably assisted in arrangements on the part of the University by Professor Clyde H. Wilson, Head of the Department of Industrial Education and the Trade & Industrial Teacher-Trainer headquartered at the University.

This report has been written and compiled by Dan M. Jones, District Supervisor of Trade and Industrial Education with headquarters in Chattanooga, who has since the inauguration of the REA program in Tennessee worked quite closely with Messrs. Alexander and Couch in establishing and improving the REA program.

It was a genuine pleasure to us in Tennessee to be the host of this REA Instructor's Conference, and it is with pleasure that we submit herewith to you a report of the conference for your consideration and use.

W. A. Seeley, State Supervisor
Trade and Industrial Education

G. E. Freeman, Director
Vocational Education

TABLE OF CONTENT

R.E.A. JOB TRAINING AND SAFETY CONFERENCE

Persons in Attendance
October 4-8, 1948

C. G. Alexander, R.E.A. Instructor, Alcoa, Tennessee

Earl S. Baird, Coordinator Job Training and Safety, Iowa State College, Ames, Iowa

G. E. Baker, R.E.A. Instructor, 900 Houston Avenue, Crockett, Texas

Robert W. Ball, Committeeman for Safety Job Training, Black River Falls, Wisconsin

D. B. Bidle, R.E.A. Instructor, 168 W. Maple Street, Canton, Illinois

Wayne W. Black, R.E.A. Instructor, Marion County Vocational School, 613 Orange Avenue, Ocala, Florida

A. B. Blacklock, R.E.A. Instructor. 7062 Emma Avenue, St. Louis, Missouri

I. K. Boggs, Safety Instructor, 951 S. Pickwick, Springfield, Missouri

Q. L. Bridges, R.E.A. Instructor, 702 N. Commerce, Corsicana, Texas

Walter C. Brown, Supervisor Industrial Education, Jefferson City, Missouri

Joe W. Chambers, R.E.A. Safety Instructor, 3436 Washington Avenue, Baton Rouge, Louisiana

A. L. Chantry, R.E.A. Instructor, Osceola, Nebraska

James L. Counts, Safety Instructor, Prosperity, South Carolina

W. L. DeVaughan, R.E.A. Instructor, 653 W. Front Street, Statesville, North Carolina

Russell E. Dew, R.E.A. Instructor, Las Vagas, New Mexico

E. C. Edwards, R.E.A. Instructor, Tuscaloosa, Alabama

Earl F. Ehlers, Rural Electrification Instructor, Mauston, Wisconsin

Charles Everett, Jr., Representative Bureau of Apprenticeship, U. S. Department of Labor, 1304 Highland Drive, Knoxville, Tenn.

Thomas A. Findlay, R.E.A. Instructor, 278 W. Arlington Avenue, St. Paul, Minnesota

N. E. Fitzgerald, Dean, College of Education, University of Tennessee, Knoxville, Tennessee

Roy S. Hendrix, Manager Applachian Coop., Jefferson City, Tennessee

Persons in Attendance - continued

Chester A. High, Job Training Supervisor, 254 S. Southhampton, Columbus, Ohio

Charles Hill, R.E.A. Instructor, Hillsboro, Ohio

Ralph A. C. Hill, Labor Relations and Safety Specialist, R.E.A., Washington, D. C.

Rowland L. Hill, Coordinator Evening Trade Extension, 3314 Fountain Park Blvd., Knoxville, Tennessee

W. B. Hill, Teacher Trainer, Purdue University, 209 Educational Building, West LaFayette, Indiana

Albert Hinrichs, Line Foreman, Petersburg, Illinois

K. N. Jackson, R.E.A. Safety Instructor, 3601 Lilac Cove, Little Rock, Arkansas

Dan M. Jones, District Supervisor, Trade and Industrial Education, 215 Chestnut Street, Chattanooga, Tennessee

M. D. Kaderli, R.E.A. Instructor, Abilene, Texas

E. H. Kellogg, R.E.A. Instructor, Goodland, Indiana

J. L. Langston, R.E.A. Instructor, Georgia

E. A. Lee, Trade and Industrial Division, 1701 St. Capitol Building, Baton Rouge, Louisiana

H. M. Martinson, Principal Training Officer, 5509 Radio Road, Fountain City, Tennessee

T. Earl Meeks, Electrical Apprentice School Instructor, South Pittsburg, Tennessee

W. W. Mills, R.E.A. Instructor, Kosse, Texas

Darnall Morrison, Training Officer, T.V.A., 2920 E. Fifth Avenue, Knoxville Tennessee

James Morrow, Manager R.E.A., Chairman State Education Committee, Denison, Iowa

E. F. Nauert, R.E.A. Instructor, Industrial Extension Service, A & M College, College Station, Texas

H. C. Potthast, Rural Electrification Instructor, Mauston, Wisconsin

Persons in Attendance - continued

Carson T. Thyne, Safety Officer, T.V.A., Dogwood Road, Fountain City, Tennessee

W. A. Ross, Consultant Public Service Occupations, U. S. Office of Education, Washington, D. C.

W. A. Seeley, State Supervisor, Trade and Industrial Education, 202 War Memorial Building, Nashville, Tennessee

A. B. (Jack) Shehee, R.E.A., Washington, D. C.

Frank Slover, Line Foreman, Jefferson City, Tennessee

Joe Staff, Safety Instructor, Manhattan, Kansas

E. H. Stovall, R.E.A. Instructor, Colonial Apartments, Starksville, Mississippi

Chester Strait, R.E.A. Instructor, 1115 Register Tribune Building, DesMoines, Iowa

B. A. Thompson, R.E.A. Instructor, State College, Mississippi

Frank A. Van Eynde, District Supervisor, Trade and Industrial Education, Stair Technical High School, Knoxville, Tennessee

P. W. Voltz, Coop. Analyst, 5316 Shamrock Drive, Knoxville, Tennessee

R. L. Welch, State Supervisor, Trade and Industrial Education, Madison, Wisconsin

Clyde H. Wilson, Professor Industrial Education, University of Tennessee, 104 Ferris Hall, Knoxville, Tennessee

L. L. Wingo, Supervisor T & I Education, State Board for Vocational Education, Springfield, Illinois

Ervin H. Wright, Manager Southwest Tennessee E.M.C., Brownsville, Tennessee

Dan W. Jones, T.V.A., P. O. Box 384, Johnson City, Tennessee

PROGRAM SPEAKERS

Dr. C. E. Brehm, President, University of Tennessee, Knoxville, Tennessee

Ralph A. C. Hill, Labor Relations and Safety Specialist R.E.A., Washington, D. C.

A. B. (Jack) Shehee, R.E.A., Washington, D. C.

Persons in Attendance - continued

W. A. Ross, Consultant Public Service Occupations, U. S. Office of Education, Washington, D. C.

Clyde H. Wilson, Professor Industrial Education, University of Tennessee, 104 Ferris Hall, Knoxville, Tennessee

Thomas L. Hankins, Professor Industrial Education, University of Kentucky, Lexington, Kentucky

Dean N. E. Fitzgerald, College of Education, University of Tennessee, Knoxville, Tennessee

PLANNING COMMITTEE FOR 1949

Chester High, Ohio, Chairman

E. H. Stovall, Mississippi

H. C. Potthast, Wisconsin

D. B. Bidle, Illinois

A. B. Blacklock, Missouri

Joe Staff, Alternate, Kansas

In addition, W. A.Ross of the U. S. Office of Education, Ralph A. C. Hill of the Rural Electric Administration, together with the state supervisors of the respective states as indicated above are to serve on the Planning Committee in an advisory capacity.

SECRETARY OF THE CONFERENCE

Dan M. Jones, District Supervisor, Trade and Industrial Education, 215 Chestnut Street, Chattanooga, Tennessee

First row, left to right: Alexander, Edwards, Stovall, Bidle, Nauert, Shehee; second row: Wingo, Brown, Chantry, High, Baker, Blacklock; third row: Jones, Miss Luethke, DeVaughan, Counts, Staff; fourth row: Wilson, Findlay, Van Eynde, A. W. Hill, W. B. Hill, Welch, Potthast, Langston; back row: Strait, Chambers, Ehlers, Kellogg, Ball, Dew, Morrow, Ross, Boggs, Thompson, Bridges, Lee, Hinrichs, Jackson, Baird, Mills, Black, Kaderli, Voltz.

R.E.A. JOB AND SAFETY TRAINING CONFERENCE

Opening Session, Morgan Hall, University of Tennessee
Monday, October 4, 1948

E. F. Nauert, R.E.A. Instructor, Austin, Texas, Presiding

The conference was called to order promptly at 10:00 a.m. by Chairman E. F. Nauert of Texas, who requested that each person present stand and introduce himself to the group by stating his name, his title, and his home address.

After the introductions were completed, the Chairman presented Dr. C. E. Brehm, President of the University of Tennessee, who welcomed the group to the University of Tennessee.

Dr. Brehm stated that he was delighted to have a group of this kind on the campus of the University, particularly since so many men from so many other states are represented

He told the group something about the University, and the service it is rendering to the people of Tennessee. He pointed out that there are approximately 7,500 persons attending the University of Tennessee on the main campus in Knoxville, and that the University also has schools and colleges in Memphis and Martin, which increases the total number taking residence courses to approximately 9,500. The Memphis Colleges are Medicine, Dentistry, Pharmacy, and Nursing and are known as the health units. The Junior College at Martin offers two years of college work only.

Continuing, Dr. Brehm stated that the University of Tennessee is expanding its off-campus activities because a large number of people do not have either the time or money to attend the University full time, yet they want to take university courses. He commented favorably upon the work of the Division of University Extension, and said that through the Agricultural Extension Service, persons in every one of the 95 counties in Tennessee had been served in one way or another.

Dr. Brehm reviewed the growth of the R.E.A. Co-ops, and mentioned one cooperative in Tennessee that started about 10 years ago with a little over 1,100 members, which had grown steadily until today it serves approximately 12,000 members, and has applications on hand which will increase that figure considerably. As the electrification program expands, hazards to life and property expand and the necessity for trained personnel increases.

Concluding, Dr. Brehm indicated that the most valuable element one has to deal with is human life and without proper practices, the work of the Rural Electric Administration can become a most hazardous enterprise. In closing he reiterated that he was delighted to have the group on the campus, and expressed the hope that each one would find time to visit the other buildings and departments located on the campus.

Dean N. E. Fitzgerald was presented to the group by Professor Clyde Wilson who took advantage of the opprotunity to sketch briefly the background of the speaker. It was pointed out that Dean Fitzgerald had been one of the

pioneers in training teachers of Vocational Agriculture in Tennessee and as such was fimiliar with the problems that face instructors in any vocational field. Since assuming his present position, he is interested in promoting education at all levels and is still a strong advocate of training for adults in all fields.

Dean Fitzgerald expressed pleasure for the opportunity to meet with the group and to learn about their activities. He stated that from all reports it was evident that the Job and Safety Training Program was meeting a real need and was contributing to the effectiveness of the R.E.A. Service in the various states represented. He praised the efforts of the group to improve their teaching techniques, to exchange ideas on instructional methods and to make their own efforts more definitely functioning. He emphasized the point that the tendency in all modern education is to face the realities of modern life and changing conditions.

The Dean also stated that in some circles people are putting great emphasis on "The freedoms" to which they were entitlted while entirely ignoring the responsibilities which should go hand in hand with the rights and privileges in a democracy. He commended the group on their direct approach to improving the discharge of responsibility in their field and expressed a wish that their programs would become increasingly larger and more effective. He concluded with the hope that the out of state visitors would enjoy their stay and would retain some pleasant memories of their visit to Tennessee.

W. A. Seeley, State Supervisor of Trade and Industrial Education, was introduced to the group. As a representative of the State Board for Vocational Education, Mr. Seeley stated that it was a pleasure for him to welcome each one present to the Volunteer State.

He reviewed the incidents which led to the employment of the first Job Training and Safety Instructor in Tennessee, and mentioned the good record the various cooperatives have made.

Mr. Seeley pointed out that he believed that all Job Training and Safety Instructors should emphasize good job practices, which would certainly include a safe procedure, because safety is an integral part of each job. He pointed out the need for more and better organized instruction and expressed the hope that each one would enjoy his stay while in Knoxville, and that much good would come as a result of this conference.

C. G. Alexander, Itinerant Instructor from Tennessee, gave a detailed explanation concerning the trip proposed for Wednesday, October 6. He announced that arrangements have been made for the group to visit two hydro-electric installations operated by the Tennessee Valley Authority. The first one included on the tour was Fort Loudon Dam, located about 20 miles down stream from Knoxville. From Fort Loudon, he announced that they would proceed to Fontana Dam in North Carolina. This is the third highest dam in the United States and is the tallest structure in the Tennessee Valley Authority System.

Chairman Nauert introduced Mr. Ralph A. C. Hill, Labor Relations and Safety Specialist, Rural Electrification, Washington, D. C., who addressed the group. His topic was "New Developments in the Job and Safety Training Program", which was developed as follows:

"A year ago last month, I joined the R.E.A. as Labor Relations and Safety Specialist. My first introduction into the Job and Safety Training Program was in the Social Security Building, Washington, D. C., where I met Mr. Jack Shehee, Mr. William Rushlow, Mr. Art Ross, and your planning committee for the 1947 conference. I admit that this meeting was completely over my head, but I was able to learn a lot in these planning conferences of the program. When your conference met in Washington last year, I told you at that time that I knew nothing about electricity and up-to-date I havn't gathered too much knowledge on this subject, but I have worked hard in bringing the program to States which had not adopted it.

"A year ago there were 22 states which had the program functioning. Today there are 35 states that have adopted a Job and Safety Training Program. Some of them have already employed their instructors - others are in the process of working out ways and means to do so. One of our problems has been in New England where the top three New England states have combined so that one man will serve them all. There is a problem yet to be worked out of crossing State lines for travel and mileage expenses. There are only a few states left where the program has not been adopted - Wyoming, Colorado, and Utah. These States undoubtedly could each be served by an instructor. If we are successful in crossing state lines in New England, we hope to be able to do the same in Delaware, Maryland, and West Virginia, as well as New York and New Jersey. If this is done we should have 100 per cent coverage, which is the aim of the R.E.A.

"All this might sound as if I am trying to pat myself on the back for a job done, but if I had not had the finest and fullest cooperation of the U. S. Office of Education, as well as from the T & I officials in the individual states, the task could not have been accomplished. The Administrator of the R.E.A. has charged me with the responsibility of seeing that a Job and Safety Training Program is established throughout the country so that every employee from foreman down shall have the opportunity of being able to do a better job. The more knowledge he has the safer it will be done and it is my feeling that this only can be done with the closest cooperation by all concerned. I only can praise Mr. Walt Cooper, Mr. Art Ross, and all the T & I Supervisors for their fine assistance in serving the R.E.A. cooperatives.

"What promotional work is left will be done by me. Our personnel staff is very small and from now on the field safety engineer will devote 100 per cent of his time to service work. That means this; that where cooperatives of individual states are not participating in the program he will spend time finding out the reasons why and try to get them to join the program. He will also be used in the field to determine grievances of cooperatives who have faults to find. He will work with the instructors in assisting them on material and giving them R.E.A. support. With the one man we have now it is impossible for him to be everywhere at the same time, but it will be our

effort to see that each and every state will be partly served. The R.E.A. Administrator has authorized the employment of one new field safety engineer. I am in hope that it will not be too long before he will be in the field working with you. As these field safety engineers go into the field, the Washington Office will notify the Chairman of the Safety Committee, the T & I Supervisor or college, of his itinerary within the state. It will not always be possible that he will have the opportunity of visiting all concerned as it might be that we will want to make a study of specific conditions within that State.

"I wish to impress that our only desire is to help you and to create a greater uniformity with the cooperation of all concerned in this program. I am in hopes that in the near future we will be able to employ two technical men to work under the instruction of Frank LaMaster in developing training materials, etc., that will be mailed to the states looseleaf. This material can be used by you, if you so desire, and we hope will relieve you from spending so much time on research work. We also feel that by developing this from a centralized point, we are in a better position to get you information on newly developed tools and equipment direct from manufacturers. Our job has become so large that I feel we should concentrate solely on the problem of job and safety training. Such things as engineering, employment, manager training, etc., should be left to others. We have all we can do in the job cut out for us. As I mentioned before, our work is so spread out over the country now that it is necessary that if you wish any of the field men or anyone from the Washington office to participate in the conference that you are to hold in your State, please let us know far enough in advance so that itineraries can be arranged. You will save time by writing Washington direct as our field people have to send your request in to us when they are approached directly. Our field engineer now is booked up for two or three months in advance and I am well lined up until after the first of the year. It is necessary that someone remain in the office at all times and Frank LeMasters has been assigned to that work. He is really doing a great job in getting out the Lineman and if there is any suggestions or items that you wish to submit, please do not hesitate to do so. The Lineman alone would be a full time job for a man, but I have to depend on Frank to cover for me while I am out in the field, which is a good portion of the time.

"I only suggest again that you call upon us when we can be of service. I wish to impress upon you that this program belongs to the borrowers of R.E.A. and that the office of the Labor Relations and Safety Specialist is charged with the duty of seeing that our borrowers are served. We feel that this best can be done on a state level, but with the closest cooperation of the Job and Safety Training Committees, the officials of the T & I, you instructors, the U. S. Office of Education and ourselves all pulling together we can do a better job. Please do not hesitate to call on us at any time. Thank you."

BUSINESS SESSION

Chester High was nominated as Chairman of the Planning Committee, and was elected by acclamation. The group also voted that:

1. The chairman of the Planning Committee be given the authority to appoint the other members of his committee.

2. The committee be composed of five members.

3. The number of years the members are to serve on the committee should vary so that at least one member will carry over to each suceeding year.

4. Someone from the Office of Education, and the Labor Relations and Safety Specialists' Office, Rural Electric Administration, be made permanent advisory members of the Planning Committee.

5. The State Supervisors of Trade and Industrial Education representing those states from which the members of the Planning Committee are selected also be made advisory members of this committee.

In connection with items 1 and 2 above, Mr. High appointed the following persons to serve with him on the Planning Committee:

E. H. Stovall, Mississippi
H. C. Potthast, Wisconsin
D. B. Bidle, Illinois
A. B. Blacklock, Missouri
Joe Staff, Alternate, Kansas

In addition, W. A. Ross of the Office of Education, Ralph A. C. Hill of the Rural Electric Administration and the state supervisors of the respective states as indicated above are to serve on the Planning Committee in an advisory capacity.

MONDAY AFTERNOON SESSION

Accomplishments of Job and Safety Training Program

A. B. (Jack) Shehee, R.E.A., Washington, D.C.

"This discussion will largely center around the accident record in R.E.A., both as to frequency and severity. This is in a comparative matter. Since 1939 to date there has been a total of 178 fatal accidents. The majority of these men lost their lives by the commonest offender, the electric shock.

"From January 1947 to October 5, 1947, a total of 31 men lost their lives in the performance of their duties. From January 1948 to October 5 there were 14 fatal accidents in R.E.A. This is a great improvement and by comparison it indicates 17 lives were saved. The 14 fatalities may be attributed to the fact that our personnel was not properly trained. In some instances they did not have a thorough understanding of the job at hand.

"The answer to any safety record is training, and we in R.E.A. are indebted to T & I and their instructors for the job that is being done. As a breakdown, these 14 men lost their lives in the following ways:

9 were electrocuted
2 in transportation accidents (going to and from job)
1 by explosive
1 by falling objects in generating plant
1 by drowning

"To overcome these accidents, you instructors, in addition to training, must seriously insist that proper protective equipment is used and that it be taken care of. For example, rubber gloves should be used from the ground up and transformer gins should be used in removing and installing transformers on energized lines. The use of slings should be discontinued. In other words, never allow your lineman and trainees to get into a position where they are in reaching distance of phase wire. This safeguard would overcome approximately 75 per cent of our accidents.

Accident Reports

"We are not getting accident reports to properly keep our files in a shape to have a complete record. No one will be embarrassed in any respect concerning your instructors advising us relative to lost time and fatal accidents. We encourage and appreciate your cooperation in this important matter.

We encourage suggestions from you regarding publishing The REA Lineman, and if you are not getting sufficient copies of The Lineman, call on us.

Testing Equipment

"This test should be made on a 30 to 60 day period by a licensed laboratory and each member of the line crew must be equipped with two pairs of gloves. I have thought in a number of instances that the systems throughout the United States are not properly caring for their protective equipment.

Opening Energized Line Under Full Load

"These reports from some systems have recently stated that the power demands far exceeds the normal capacity, and the lines are overloaded. We have recently had fewer severe burns, yet it is true in some instances that proper precautionary measures were not taken in the performance of this particular job.

"Our office congratulates the State Department of T & I Education, the universities, other state institutions and your men for the splendid cooperation you have given us, and we sincerely urge each of you to call on us whenever our services are needed.

* * * * * *

H. M. Martinson, Principal Training Officer, Tennessee Valley Authority, showed the group some of the instructional material that is used in its training program which might be helpful to some of the job training instructors in their own local situations. While he made it clear that he did not consider the material unique or different, he did state that if there was any material in the assortment which anyone would like to have, he would be glad to send copies to them insofar as his limited supply permits.

A Review of the Four-Step Method of Teaching

W. A. Ross, Consultant
Public Service Occupations
Division of Vocational Education
U. S. Office of Education

W. A. Ross of the U.S. Office of Education was not a stranger to many of those in attendance since he had appeared on the program of the R.E.A. Conference in Washington last year. Mr. Ross stated that he would give a brief review of the basic principles of teaching since this topic was to be given major emphasis in the present program. Notes on his remarks will cause the group to recall many other attendant ideas which were brought into the discussion.

Teaching is helping others to learn.

Teaching is the sum of all the activities of the instructor which lead, guide, direct or control the thinking and actions of learners.

Teaching is getting someone to do something useful they could not do before or to do something better than it was done before.

Good learning usually takes place against a set of standards of some kind, devised by one of several individuals and based on experience.

Learning takes place under favorable learning conditions, when interest and enthusiasm is aroused and held, when a learning pattern is provided, and when efficient instruction and follow-up is provided.

Teaching is:

Imparting information;
Conveying worth-while information;
Assisting the learner to develop understanding, doing ability and skill.

Some elements in a good learning set-up are:

1. An appropriate and comfortable meeting place;

2. Instructors who know their subject and who know how to teach;

3. Persons who can learn and desire to learn;

4. Well-planned lessons;

5. Adequate equipment and instructional aids;

6. Sufficient time to do the teaching.

How People Learn

The mind is a "neural switchboard" which "wires" itself to experience. The five senses constitute avenues of learning.

We retain very little of what we merely hear, more of what we see, and still more of what we see, hear and wholeheartedly experience.

Self-activity is absolutely necessary in any learning. No real learning takes place without activity -- mental and/or physical.

Interest is "the sense of value one feels for the material which he is studying, about which he is thinking, or with which he is working."

Habit is "the tendency to respond in a definite manner" -- created in whole or in part by experience, training, and practice.

Skills are simply "well-established ways of doing things."

Educational Procedures

There are three educational procedures:

Informing;
Instructing;
Conference.

These constitute reliable guides for training.

Which educational procedure you use depends on such factors as:

1. Age and experience of learners;

2. Previous training;

3. Size of the group;

4. Where the teaching is done;

5. Nature of the subjects;

6. Level of learning desired;

7. Abilities of learners;

8. Equipment and teaching materials available.

9. Time limits.

There are three main stages in instruction which are as follows:

1. Getting ready. Work done by the instructor in advance of the actual teaching.

2. Giving the instruction. This includes three of the four steps in teaching.

3. Checking the effectiveness of the instructor. This includes all testing and follow-up of learning.

Analyzing

Analysis is merely a classified inventory of the parts or elements composing something. In teaching, it is a device for discovering and recording important teaching content.

Analysis can be applied to an industry, an occupation, a phase of an occupation, an enterprise or any common job to be done.

A common and very usable form for an analysis is:

The necessary steps (WHAT);
Key points involved (HOW);
Technical and related information (WHY).

An analysis is not the lesson plan. It is preparation for lesson planning.

Lesson Planning

A common and usable form for a lesson plan is:

The Situation (Why job needs to be taught);

The Objectives (What is to be accomplished by learners);

The Teaching Procedure (Path instructor will follow in teaching to reach objective):

1. Introduction
2. Presentation
3. Supervision of practice
4. Testing and follow-up.

References and Teaching Aids (What is needed to teach with):

In setting up your lesson plans, consider these points:

1. Is the instruction necessary and why.
2. Who is to be taught.
3. How much do the learners already know.
4. What is to be taught.
5. How is it to be taught.
6. What teaching aids and materials are necessary and appropriate.
7. Where could teaching best be done.
8. Where will teaching have to be done.
9. How long will it take.
10. How will the efficiency of the instruction be checked.

As you use a lesson plan, watch for weak places in it and improve it. Make pencil notes in margins while ideas are fresh in your mind. Five basic ways of controlling learning are:

1. By demonstration
2. By illustration
3. By questioning
4. By directing
5. By telling.

Teaching Materials

Five basic forms in which teaching materials are found:

1. Actual materials
2. Models

Monday Afternoon - continued

3. Spoken-word materials
4. Written-word materials
5. Graphic and pictorial materials.

With all teaching material:

1. Assemble it
2. Select it and cull it
3. Organize it for your needs in terms of teaching jobs.

In general, subject matter should be:

1. Reliable
2. Interesting
3. Attractive
4. Learnable
5. Well-arranged
6. Appropriate
7. Inspirational.

Conducting Classes and Teaching

Start on time.

Go directly to the job.

Vary your attack and teaching pace.

Know the people in your class.

Use your lesson plan as your "chart and compass" and push ahead.

Close on time.

Be ever conscious of the learner. He is an adult with adult characteristics and responsibilities.

Some Things to Remember

"The mark of an educated man is his ability to discriminate between the important and the unimportant." (Grove Patterson)

"A man may know everything there is to know in the world and still not be educated. Knowledge is a part of education but knowledge for doing rather than for the value of knowing." (John Dewey)

"Every human mind is a great slumbering power until awakened by keen desire and by definite resolution to do." (Edgar Roberts)

Monday Afternoon - continued

"No study is possible on the battlefield. One does there simply what one knows. Therefore in order to do even a little one has to know a great deal and know it well." (Marshal Foch)

1. You can tell a man.
2. You can show a man.
3. You can have him do it.
4. You can combine 1, 2, and 3 for greater effectiveness.

INSPECTION TOUR

The entire day of Wednesday, October 6 was devoted to a tour, when 37 persons made an inspection of the T.V.A. installations. The first dam inspected was Fort Loudon, located about 20 miles below Knoxville. From there the group drove to Fontana Dam, located a few miles over the state line in North Carolina. Fontana Dam is the highest dam in the T.V.A. system, being 480 feet high and containing three million yards of concrete. The group was conducted through the installations at each place by T.V.A. personnel, who explained the functions of the various devices located at each installation.

DEMONSTRATIONS

Tuesday, October 5, and Thursday, October 7

Two days, Tuesday and Thursday, were devoted to instructional demonstrations. Following each demonstration lesson, a discussion on the method of presentation was conducted by W. A. Ross of the U.S. Office of Education and Clyde H. Wilson, Head of the Department of Industrial Education, University of Tennessee.

Typical Rural Electric Line Jobs were previously assigned to a number of those present, who came prepared to demonstrate how they went about teaching the instructional unit assigned to them. Those who participated and the instructional units assigned were as follows:

E. H. Stovall, Mississippi, "Installing and Replacing Lightning Arrestors and Cut Outs on 15 KV. Circuit Hot"

Ivan Boggs, Missouri, "Capacitors; Their Function and Proper Maintenance."

Joe Staff, Kansas, "Stringing Wire Over Energized Circuits."

Chester Strait, Iowa, "Tree Trimming"

M. D. Kaderli, Texas, "Operation and Maintenance of Oil Circuit Breakers"

G. E. Baker, Texas, "Connectings for 3 Phase Secondary from 2 Phase Primary"

H. C. Potthast, Wisconsin, "Use of Models as an Aid in Instructing"

C. E. Edward, Alabama, "Proper Method of Installing Protective Grounds and When to Use Them"

Demonstrations - continued

D. B. Bidle, Illinois, "The Various Uses of Visual Aids"

A. H. Chantry, Nebraska, "Moving Energized Line With Boom Truck"

Earl S. Baird, Iowa, "Unloading Poles" Application of the Breakdown to Teaching

J. L. Langston, Georgia, "Explanation of Name Plate Data on Transformer - Voltage Changing by Changing the Taps"

Earl Ehlers, Wisconsin, "Two and Three Wire Connection on Transformer - Polarity and Capacity of Same"

T.H. Findley, Minnesota, "Procedure and Methods for Truck Inspection"

C. A. High, Ohio, "Paralleling - Transformers on Secondary Network"

C. G. Alexander, Tennessee, "Install New Cross Arms on C-1 Construction Energized"

In each demonstration, the instructor made an effort to apply the four-step method of instructing. A number of them used teaching aids which they considered to be of value in a particular situation. The blackboard was used to advantage by a number of instructors to clear up various points or to illustrate a specific situation. More than one person brought colored posters or charts which they had prepared to help them in the presentation of their topic. Others distributed prepared instructional material to the group. As a matter of fact, the practice of distributing outlines and other instructional materials was so general that to include them in this report was not considered necessary. If there are individuals who would like to get an additional copy of any outline, we suggest that they write directly to the person who passed it out at the meeting.

While all demonstrations were good, three of them were unique to the extent that it is felt that they deserve particular recognition.

J. L. Langston from Georgia used a pictorlite Visual Cast Projector in his demonstration which attracted considerable attention. This machine enlarges the work done on a surface and projects it on a screen in back of the instructor, thus making it possible for the instructor to face the group at all times. This is a very flexible machine, and lends itself nicely to teaching mathematics, working formulae, explaining wiring diagrams or connections, and in many other similar teaching situations. Since the projector is located a short distance from the screen, very good results may be secured in a comparatively light room. The work done can be projected high enough so that the leader does not stand in the line of vision of those he is attempting to teach.

H. C. Potthast of Wisconsin used several miniature models of transformers in the development of the topic "Use of Models for Instruction Class." These

models were made of tin cans and were painted to resemble transformers. Football cleats were used to represent insulators, and taps were arranged so that various connections could be made. Many complimentary remarks were made concerning these models and their value as an aid in teaching.

Chester Strait from Iowa brought along a 16 mm colored film he made of a tree trimming crew in action in his state. The photography in this film was excellent, and many good shots were secured. Mr. Strait explained that the shoots were made of a tree trimming crew as they went about trimming trees in various situations and locations. Since an ordinary situation was used, he stated that some practices observed may not be the best, but that the film could be used as a basis for some good group discussion, and that it had been used for this purpose on a number of occations. Use of aerial trucks and ladders for tree trimming was featured in the picture.

After each demonstration, Mr. Ross and Mr. Wilson alternated in conducting a discussional period. In each instance they pointed out the good features of the demonstration, considered the extent to which the instructor included the four steps in the instructional process, and sometimes a general discussion followed each demonstration during which time those present participated and made comments in a friendly and constructive manner.

FRIDAY MORNING

Chairman Nauert introduced Thomas L. Hankins, Associate Professor of Industrial Education, University of Kentucky, who spoke on the topic, "Conducting a Conference". A summary of his remarks follows.

All instructors have had some experience with conferences either as leaders or members. A conference is a convenient method or device for (1) teaching, or (2) solving problems or making decisions. It is sometimes desirable in dealing with a group of experienced persons to discuss some topics in a way that will let the group members contribute information and points of view which will be of great practical value to other members of the group as well as to the instructor himself. This method of securing and assembling information from the group is called the Conference Method. Here, for the time, the instructor refrains from putting over his own ideas directly, but instead, he directs the discussion of some questions or topic and brings out the ideas and opinions of those in the group. If teaching is the primary purpose, the leader will direct and control the general course of the discussion so that the information he wishes the group to have will be brought out.

Definition of Conference Procedure

The Conference procedure has been defined as the systematic although somewhat informal thinking through of some problem by a group of experienced persons under the direction of a leader.[1]

Conditions Involving Effectiveness[2]

A conference will be effective in proportion as the leader (the instructor in this case) does the following things:

1. Sets up a definite question or topic for discussion and writes this on the board or chart.
2. Lists out certain headings under which the topic will be discussed.
3. Asks questions and secures statements from the group bearing on these topics.
4. Puts down on board or chart the statements from the group bearing on these topics.
5. Secures participation in the discussion on the part of all members of the group.
6. Keeps the discussion related to the topics under consideration.
7. Gives an opportunity to hear and list out both sides to a question, advantages and disadvantages, arguments for and against, various methods, etc.
8. Gives an opportunity to arrive at some conclusions or decisions.
9. Permits all members to have a voice in the discussions and decisions.
10. Prepares a report of all the items brought out in the conference and distributes it to all members of the group.

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1. Frank Cushman, Foremanship and Supervision.
2. Clyde H. Wilson, A Handbook for Teachers.

In most instances, you will employ the conference method in working with manager and foreman groups. Since these people have common experiences and problems, they can participate effectively in conference work.

Here are some suggestions for the instructor who is about to lead his first conference.

Schedule: Arrange with the proper official a definite schedule for the sessions. The number of sessions and the length of each will be determined by the number and extent of the matters you expect to consider. A foreman conference is usually held 6 hours a day for 2 or 3 days. Because of travel difficulties, it is better to spend the whole day for a short period rather than to meet 2 or 3 hours a day for a week.

Size of Group: Fifteen is about the right number for a good conference. In large groups, some men will be slow to participate.

Room: Having a suitable meeting place is most important. A good room indicates that management attaches importance to the conference and the men will feel complimented by being invited to attend. If one corner of a cold disorderly warehouse, with upturned nail kegs and empty wire reels for chairs is offered as a meeting place, cancel your plans. It is obvious that your work is considered unimportant. Check to see that the room meets those requirements:

1. Located in a quiet part of the building.
2. Large enough to accommodate the group comfortably.
3. Properly heated, lighted, and ventilated.
4. Equipped with tables arranged in a "U" shape with chairs on outside so everyone will be able to see each other without turning around.
5. Equipped with a blackboard at least 4' x 6' in size. The board should be placed so that the men face from the light.
6. Provided with chalk and erasers.
7. Provided with ash tray.

Name Cards: If all members of the conference do not know each other, place a name card at each man's place. This card can be made readily by folding lengthwise a 5" x 8" filing card. Print the name large enough to be read easily.

Reference Material: There will be times when you will wish to distribute charts, bulletins, and the like. Be sure to check your supply of these before the meeting at which they will be handed out.

How to Conduct the Sessions

Introduction: Always try to get the highest ranking official of the organization that is sponsoring the conference to introduce you. He may be the

president of the state association of rural electric cooperatives or a co-op manager. To be introduced by somebody in authority is just as important as having a good room for the meetings. Attention to these details will do much toward making a favorable impression on the members of your conference group.

Starting the First Session: After the time-honored "few words of greetings" give a brief review of the training and experience that qualify you as a conference leader. You can talk about yourself without being offensive, and the group has a right to know your qualifications. You would, of course, omit these remarks if everybody present knows you.

State clearly the purpose of the conference. Quite likely, your first conference will be for foreman, and its purpose will be to identify and attempt to find solutions for the more common problems they encounter in their work. Explain that you are not going to tell them how to do their jobs. Simply state that your purpose will be to guide them in working cooperatively to find better ways for doing their work.

Ask each man to tell how many years experience he has had as foreman. Announce that approximate total and comment that if one foreman could have that much experience, he could take care of all his problems as fast as they arose.

Steps in Problem Solving

1. State the problem.
2. Collect the facts.
3. Evaluate the facts - weigh.
4. Draw conclusions - decide.
5. Make a plan of action.

Conference leaders have learned through experience that they may expect certain situations or developments during the discussions. Here are some of the more common ones with suggestions for meeting them.

Keep the Discussion Going:

It is important to keep the group participating actively in the discussion.
State questions in such a way that they can be answered.
Give a case that is likely to provoke discussion.
Make a statement that will arouse interest.
Ask the group to help you restate a question.
Read the laundry list that has been developed.

Keep on the Subject: The leader has to be alert to keep the group talking about the topic.

Ask some member of the group a direct question about the topic.
Point to the topic on the board without saying anything.

Say "Your comments are interesting, but let us complete first the topic we have on the board."

Deal With the Over-talkative Person: A member who talks too much will discourage others from taking part in the discussion.

Let him do the board work for you, so he will have little opportunity to talk.
Ask him to take some notes for the group.
Guide the conversation away from him.
Ask him a difficult question that he is unlikely to answer.
Ask him privately to help you get some of the quiet members to talk more.

Encourage the Non-talkative to Participate: Few sessions will be successful unless everybody has a part in the discussion. The following methods are useful in getting a person to talk:

Ask his opinion on some matter.
Ask him a question that he can answer easily.
Keep him out of embarrassing situations.
Gain his confidence by talking with him informally when the group is not in session.

Edit Statements: Often you will get statements that have little bearing on the question under discussion. It is extremely important, however, that you list a man's contribution on the board. Failure to do this will likely hurt his feelings and discourage further participation.

Restate his statement.
Get his approval.
List statement on the board.

Miscellaneous Suggestions:

Be enthusiastic.
Be thoroughly familiar with the techniques and aids you plan to use.
Get group participation.
Don't force your views on members of the group.
Keep charts, diagrams and other illustrative material out of sight when not in use.

After writing a statement on the board, list the next number and say, "What is your next point?" To say, "Is that all?" may be an invitation to stop the discussion.

Writing a Report of the Conference

It is a good plan to write a report of the conference and distribute it to all members and others who may be interested. The report should contain an introductory statement by the sponsoring official(s), the names and addresses of the foremen who attended, a picture of the group if it can be made without too much trouble, and the material copied from the board arranged and edited to give a logical and concise summary of the proceedings.

BUSINESS SESSION

E. E. Edwards, chairman of the Resolutions Committee presented the following resolution:

Resolution No. 1

Whereas, it is evident that considerable planning was done prior to and during this conference, involving the co-operative effort of a number of individuals, departments, and agencies, and

Whereas, this group wishes to express its appreciation to all who have contributed to the success of this conference,

Therefore, be it resolved that a note of thanks and appreciation be extended to

(a) The program committee for arranging a most interesting and educational program.

(b) All those who had a part on the program particularly those who put on teaching demonstrations.

(c) President C. E. Brehm and other officials of the University of Tennessee for permitting our group to meet in Morgan Hall and for providing staff members to assist in conducting the sessions.

(d) W. A. Seeley, State Supervisor of Trade and Industrial Education and members of his staff for making our stay in Tennessee a most enjoyable one.

(e) C. G. Alexander, who was in charge of local arrangements, and who planned a most interesting trip to Fort Loudon and Fontana Dams.

Be it further resolved that a copy of these resolutions be made a part of the official report of this conference and that a copy be sent to all persons and agencies involved.

Respectfully submitted,

The Committee on Resolutions.

E. E. Edwards, Chairman
D. B. Bidle
Earl H. Ehlers
E. H. Stovall

Resolution was adopted unanimously.

Ivan Boggs, Missouri, presented the following resolution, dealing with a procedure concerning Hold Tags.

Resolution No. 2

R.E.A. System Operations - Hold Tags
(Suggested Procedure)

REA SYSTEM OPERATIONS

Before any feeder line or tap line of a de-energized nature is worked, a proper CLEARANCE must be obtained and a HOLD TAG placed.

DEFINITION OF A CLEARANCE

A CLEARANCE is an understanding by the proper authority that a circuit has been disconnected from all sources of supply and that the proper job procedure has been taken to prevent energizing the circuit until the CLEARANCE has been relaased by the crew which obtained it.

DEFINITION OF A HOLD TAG

A HOLD TAG is a tag to be attached to the sectionalizing device forbidding the closing of the sectionalizing device until authorized by the person in charge of the crew.

PERSONS OF AUTHORITY FOR CLEARANCE AND HOLD TAG

R.E.A. System Operations are LOAD DISPATCHER AND CREW FOREMAN. All operations of lines shall be directly under LOAD DISPATCHER. No line should be sectionalized until reason has been given by CREW FOREMAN, correlating his actions with the LOAD DISPATCHER.

TO OBTAIN AND RELEASE CLEARANCE

A CLEARANCE must be obtained before work is done on any line if hot line tools are not used to move conductors to a remote position in order to maintain safe working position.

The LOAD DISPATCHER is the only person who can issue a CLEARANCE or release a CLEARANCE.

The LOAD DISPATCHER shall have placed at the de-energizing device a HOLD TAG ordered with his name, placed by either the CREW FOREMAN who is to perform the work or by a person as a part of operations. (May be TROUBLEMAN).

When the person who has been designated to perform the work of de-energizing the line has done so and has placed the HOLD TAG, he shall report to the LOAD DISPATCHER the job he has done, and restate location of de-energized line, clearance ordered by _____(LOAD DISPATCHER), HOLD TAG placed at _____(Time).

When two or more crews are working on the same de-energized line, a separate CLEARANCE must be obtained for each crew and a separate HOLD TAG used for each crew.

From the time the CLEARANCE is placed by one crew, it is to be considered to be in effect until the time it is released by CREW FOREMAN of the crew doing the work. If it is impossible for the person who requested the CLEARANCE to release same (through illness, accident or other reasons) it shall be released by the general foreman in charge of crews, after he has made a personal check to see that all men are clear of circuits which were being worked.

Under no circumstances may the LOAD DISPATCHER or any other person close or order closed any sectionalizing device on which there is a CLEARANCE until instructions are received to remove HOLD TAG from CREW FOREMAN who completed work.

DUTIES OR LOAD DISPATCHER

The LOAD DISPATCHER shall make a log of each CLEARANCE and this must be checked before any CLEARANCE is ordered released. The LOAD DISPATCHER shall be the man on duty at the time the CLEARANCE is requested or released. Only the person who originally ordered the CLEARANCE may order its release (except in case of an emergency).

WORK ON DE-ENERGIZED LINES

In addition to obtaining CLEARANCE, and placing HOLD TAG, PROTECTIVE GROUND shall be placed on ALL SIDES of WORKING AREA and NO MAN or MEN will be permitted to work on de-energized lines until PROTECTIVE GROUNDS are used. Removal of PROTECTIVE GROUNDS shall be the last operation on a de-energized line before releasing CLEARANCE.

EMERGENCY

In an emergency, to protect life or property, any qualified person may open circuits without special authorization if, in his judgment, his action will promote safety, but LOAD DISPATCHER must be notified immediately of action taken.

The resolution was adopted unanimously.

Next Year's Conference

Several individuals presented invitations to the group to hold next year's conference in their state. After a brief discussion, a motion was made and passed that all invitations be turned over to the planning committee, who was instructed to select the location for next year's meeting. A number present expressed the opinion that the meeting should be held in Washington at least every other year.

Insulated Stools

H. C. Potthast, Wisconsin, raised a question concerning the use of a insulated stool for operating air break switches with metal operating handle.

After some discussion, the group voted to recommend that a steel plate permanently grounded to the switch handle be used for the operator to stand on while operating air break switches. This arrangement would place him in a situation where he would be at as near the same potential as the phase should the structure become energized by phase.

Adjournment

After Chairman Nauert thanked those present who participated in the conference, as well as those who were responsible for all arrangements, the conference was adjourned.